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A Flexibility Mechanism of the Kyoto Protocol – First Explorations of JI between the EU and Russia

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ABSTRACT

At the seventh Conference of Parties in Marrakech (COP 7) a consensus was reached on the rules, the modalities and the guidelines of the flexibility mechanisms of the Kyoto Protocol. In this paper we assess the outlook and potential of one of the flexibility mechanisms, viz. Joint Implementation between the European Union and Russia. We show that both parties have all the incentives to start working on Joint Implementation and we assess the biggest obstacle for implementing JI.

Keywords: Kyoto Protocol; flexibility mechanisms; joint implementation

1. INTRODUCTION/JUSTIFICATION

Ever since the Rio de Janeiro Earth Summit in 1992, climate change has been on the agenda for international policy makers. This has led to the Kyoto Protocol, which is aimed at reducing greenhouse gas emissions. Under the Protocol, the so-called Annex I countries can employ economic instruments that would enable them to achieve the necessary reductions in greenhouse gas (GHG) emissions in a cost-efficient manner. These ''flexibility mechanisms'' are Joint Implementation (JI), Emissions Trading (ET), and the Clean Development Mechanism (CDM). While ET allows countries to trade emissions reductions, the two other mechanisms (JI and CDM) are investments in real project abatement activities.

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Because different countries have different emissions reduction targets under the Kyoto Protocol and the costs of achieving the necessary reductions at home differ, there will be buyers and sellers. The utilization of these mechanisms will inevitably lead to a market of emissions rights, or -as it is often called- a carbon market. The dynamics of this market and the emerging price of emissions rights will affect not only the economies of the participants but also the achievement of any particular environmental goal.

Two major issues have shaped the international climate change agenda since 2000. First, at the seventh Conference of Parties in Marrakech (COP 7) a consensus was reached on major issues considering the rules, modalities and guidelines on how the flexibility mechanisms should operate. The second issue is the withdrawal of the USA from the Kyoto Protocol. In an economic retrospective of the international climate change policy arena this means the withdrawal of the biggest polluter and the biggest potential buyer of emissions rights from the emerging market.

This leads to a new picture of emerging global climate change policy regime where Russia and European Union are playing a leading role. The first, Russia, is crucial for entering Protocol into force as only Russia can input the necessary 13% of reduction needed to achieve the required 55% of GHG emissions from 55 industrialized countries. The current share of GHG emissions in the world by Russia accounts to 16.4%. The second, the EU, is the front-runner in creation of domestic and EU wide policies, such as EU emissions trading scheme (ETS) that are the first in world clear and significant steps in putting Kyoto protocol implementation into reality.

In this paper we investigate what these developments could bring for the EU-Russian partnership in climate change mitigation and more specifically on one of the Kyoto flexibility instrument, i.e. Joint Implementation, in the energy sector. We will start with a brief description of what JI in the energy sector means and what place it takes in the emerging carbon market. Then we will take a closer look at the key issues that shape the EU-Russia potential in cooperation on JI. Existence of EU-Russia JI is directly dependent on the Russian ratification of the Kyoto Protocol. This is the crucial point and decision that Russia still does not clearly show it intends to make. EU is being the strongest and the most active promoter for Russia's ratification. The subject discussed is still very much dependent on the policies and national priorities on the Kyoto Protocol mechanisms that are currently not fixed, in particular in Russia. Therefore we find it of importance to investigate and outline the key parameters of policy choice and the weight that Russia and EU

can put on JI in relation to all of three Kyoto Mechanisms. These decisions will be obviously based on various factors. In this paper we will assess the main of these factors: enabling environment for a mechanism in both, the EU and Russia; will there be a demand from the EU Member States for JI generated credits and will Russia be able to meet it, and finally the price setting for JI credits.

2. JOINT IMPLEMENTATION AND ITS PLACE IN THE EMERGING CARBON MARKET

2.1. The Kyoto Protocol and its Economic Instruments

The Kyoto Protocol (1997) is aimed at the reduction of greenhouse gas (GHG) emissions and contains legally binding targets of emissions reductions for industrialized countries. The Protocol allows these countries (the so-called Annex I countries – Table 2) to reach their emissions targets by employing specially designed flexibility mechanisms: Joint Implementation, Clean Development Mechanism, Bubble concept and International Emissions Trading. The use of these mechanisms enables countries to achieve environmental goals in a cost-efficient manner.

While International Emissions Trading (IET) presents international trade in GHC emission rights, Clean Development Mechanism (CDM) and Joint Implementation (JI) are direct foreign investments in GHGs emissions reduction projects (Table 1).

According to CDM the Annex I countries may use the certified emissions reduction (CERs) generated from project activities to contribute to the compliance with part of their emissions reduction commitments. Emissions reductions achieved under CDM projects can be counted against the Kyoto target of an investing country. Joint Implementation (JI) allows any Annex I country to transfer to, or acquire from, any other such party emissions reduction units (ERUs) resulting from projects aimed at reducing greenhouse gas emissions in these countries. International Emissions Trading enables Annex B countries to fulfill their commitments by transferring (buying/selling) emissions rights among themselves. Some experts interpret (Janssen, 2000) JI as a form of international production of emission permits associated with subsequent internal international transfer, as opposed to pure international trade in emission permits through markets which would constitute IET.

Table 1. The Kyoto Protocol and its Flexibility Instruments.

	Clean Development Mechanism (CDM)	Joint Implementation (JI)	International Emissions Trading (IET)
Stated in ☞	Article 12	Article 6	Article 17
Type ☞	Foreign *investments* in GHG emission reduction projects		International *trade* of GHG emission credits
Who can participate ☞	Annex I countries ⇓ Non-Annex I countries	Annex I countries ⇓⇑ Annex I countries	Annex B[a] countries ⇓⇑ Annex B countries
Starting period ☞	Usable from 2000 onwards (banking of emissions credits)	Usable from 2008 onwards or earlier (to be decided)	
Unit of trade/transfer ☞	CER Certified Emission Reduction	ERU Emission Reduction Unit	AAU Assigned Amount Unit

[a]Annex B is almost identical to Annex I excluding only two countries: Belarus and Turkey.
Source: Authors.

Table 2. Annex I Countries.

Australia	Greece	Portugal
Austria	Hungary[a]	Romania[a]
Belarus[a]	Iceland	Russian Federation[a]
Belgium	Ireland	Slovakia[a]
Bulgaria[a]	Italy	Slovenia[a]
Canada	Japan	Spain
Croatia	Latvia[a]	Sweden
Czech Republic[a]	Liechtenstein	Switzerland
Denmark	Lithuania[a]	Turkey
European Economic	Luxembourg	Ukraine[a]
Community	Monaco	United Kingdom of Great
Estonia a/	Netherlands	Britain and Northern Ireland
Finland	New Zealand	United States of America
France	Norway	
Germany	Poland[a]	

[a]Countries – Economies in Transition.

Each of the mechanisms provides for an exchange of a different type, between different sets of countries and using a different type of unit to denote the emissions or emission reductions being exchanged. The defined rules

under Marrakech agreement identify that assigned amount units (AAUs), credits from Joint Implementation (ERUs) and Clean Development Mechanism (CERs) projects and/or emissions removals from eligible sink activities, i.e. removal units (RMUs) can be used for complying with the Kyoto targets and each designated unit is set up as 1 ton of CO_2e thus creating the common space for transfer of units between eligible countries. In international literature this space is referred to as emerging international carbon market.

2.2. Joint Implementation: Provisions in Marrakech Accords and Experience in Activities Implemented Jointly (AIJ)

Before moving further in investigating opportunities of EU-Russia partnership in Joint Implementation in energy sector authors find useful to briefly overview the key basics of the mechanism by itself as well as to provide readers with the background information on the international experience learned.

2.2.1. Marrakech Accords: Joint Implementation

Joint Implementation has an international nature – at least two different countries (or entities from different countries) are involved in JI project. The *investing country* is the country that *funds* the project and the *host country* is the country in which the project is carried out. Joint Implementation is specifically designed to achieve emissions reductions that otherwise would not occur. As for any other project, implementation of JI project can be best described via its project cycle. In simplified form the cycle is shown in Figure 1. A project has to pass the following phases: identification of the project, project design and development and project implementation.

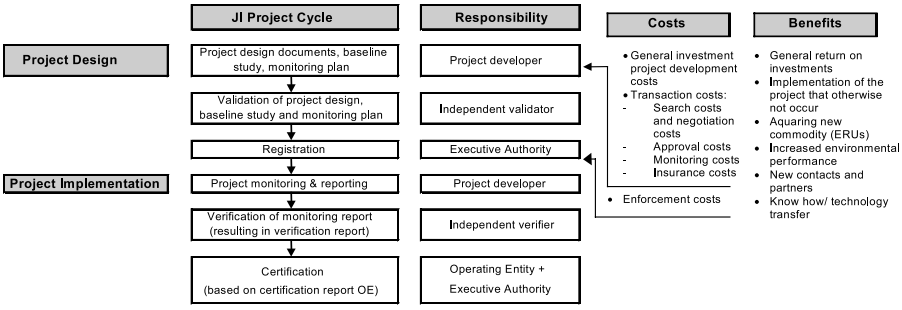
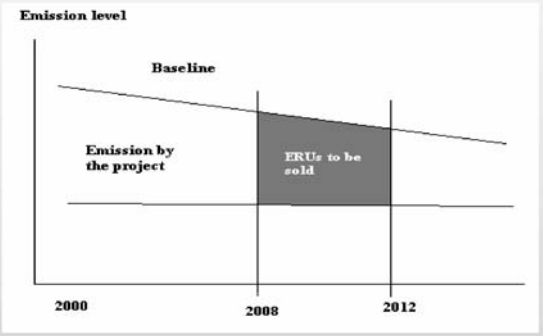


Fig. 1. JI project cycle (simplified version). (*Source: ECN, 2002; Authors.*)

Box 1

Calculation of ERUs



Source: Henkemans 2001

The ERUs' volume to be generated by a project, that can be later transferred, is estimated on the following basis:

① Determination of the baseline The *baseline* is the scenario of the situation that would have occurred if the particular JI project had not been launched.

② Estimation of GHG emission in the period from *2008- 2012*

③ The difference between ① and ② presents the volume of ERUs. This volume is shown as a grey area in the graph.

In order to measure the emission reduction units, it is necessary to estimate how high the host country's emission level would be in the absence of the project. Therefore, the baseline scenario on emissions should be drawn up. The simplified calculation of ERUs eligible to be transferred is shown in Box 1. (It must be noted that the choice of baseline is not a specific feature of JI solely. It applies to any activities on climate change mitigation under the Convention).

As the JI project is to generate ERUs eligible for transfer, the designated authorities in host and investing countries should approve the project as a JI project.

The institutional organization of JI and the quality of project monitoring and evaluation are crucial in attributing emissions reductions as well as in a project's chances for success. Collusion can happen, since all the participants have an interest in declaring excessive emission reductions. The credibility of the achieved reductions should be ensured, therefore, by qualitative verification.

Following successful verification, the certification of the ERUs should take place. Verification of achieved emission reductions can take place after the project is already launched. Both parties, however, want to be sure that project will achieve the anticipated results. Therefore, the special procedure – validation – takes place immediately after project design phase.

However, JI project implementation needs to overcome some extra barriers that were identified during the AIJ pilot phase and latest studies. In addition to general investment project costs, the project developer is likely to incur transaction costs. These costs, although not purely specific to JI project (as implementation of any project carries such costs) can be too high that would make JI implementation prohibitive (Dudek & Wiener, 1996).

As the issue is novel, such costs as on searching the suitable partner and negotiating the deal can take extra money and time spending. The uncertainty of the future market prices on ERUs as well as on particular baseline methodology will increase the desire of the project partners to obtain extra insurance to guard against the project failure. The obligatory need of strict monitoring performance of the project means the need in extra technical expertise, equipment, and operations, and thus increases expenses. Enforcement costs will arise if monitoring reveals departures from the agreed project transaction. Therefore, the transaction costs play a pivotal role in the vitality of a JI project. The widely disseminated information on the available JI programs and possible partners can lessen significantly such costs, and as experts (Dudek & Wiener, 1996) note will inevitably come with the experience and time of market operation. However, approval costs can be significant, and these can be lessened only if a transparent and simple procedure of application, certification and approval is designed by the governmental with the clear delegation of responsibilities to a designated authority.

In the energy sector the scope of JI projects aimed at GHGs emissions reduction covers a broad range:

(1) *Efficiency improvement* in energy generation based on fossil fuels, which includes such measures as increasing the efficiency of power stations and steam generators. By transferring know-how and expertise, it is possible to ensure that technically feasible efficiency levels are also achieved in practice. Emissions caused by the production and transport of fossil fuels can be reduced as well. For example, since avoidable losses of 2–4.5% occur during the extraction and transport of natural gas in Russia, this area has great potential for Joint Implementation projects.

(2) *Conversion of energy generation* to fuels, which emit less GHGs or none at all, such as conversion from coal to gas or nuclear energy. In the long run, renewable energy sources have a great potential for reducing GHGs emissions.
(3) *Reduction of energy consumption* through more efficient manufacturing processes. Innovations in manufacturing processes have great potential for improving energy efficiency.

This range has an exception – no nuclear energy projects are allowed according to the present rules under JI. It is anticipated that Joint Implementation brings several benefits for all parties involved. First of all it allows meeting environmental goal in mutually beneficial way. For a *investing country* it means contribution to meeting the emissions reduction target at lower cost than through national measures and creation of the new business opportunities for renewables, efficiency technologies, management tools, products, and consultants. For the *host country* JI means attraction of foreign investments, contribution to meet the emissions reduction target at almost zero cost, creation of incentives to new business opportunities for renewables, efficiency technologies, management tools, products, consultants and contribution to enhancement of energy security and independence by lessening demand for energy use.

2.2.2. Activities Implemented Jointly

A special pilot voluntary phase named Activities Implemented Jointly (AIJ) was established in 1994 at the first session of Conference of Parties (CoP 1) in order to obtain experience in the Joint Implementation mechanism. The phase was designed to be compatible with and supportive of national environment and development priorities and strategies, contribute to cost-effectiveness in achieving global benefits and to be conducted in a comprehensive manner covering all relevant sources, sinks and reservoirs of greenhouse gases. AIJ phase is often considered as the learning-by-doing pilot program of Joint Implementation (JI). Our interest in reviewing the AIJ pilot phase is the common elements that both share: the common type of the structure being project-based mechanisms (including the necessity to draw up the baseline scenario) and necessity to satisfy the additionality requirement.

2.2.3. Host Countries Experience

AIJ projects are being implemented in over 35 countries around the globe. At this stage the key investor countries in the AIJ pilot phase are the United States,

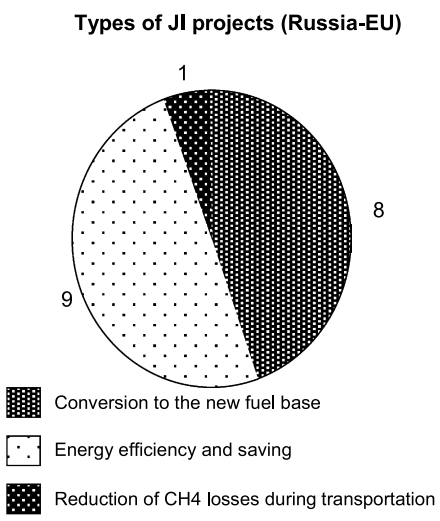
Sweden, Netherlands, Australia, and Norway. Switzerland and Germany have yet to report on a number of projects under development; however, they will also likely be key investors in future projects under the evolving Joint Implementation and Clean Development Mechanism frameworks. The United States has been a partner in the greatest number of AIJ projects, with 41 projects or 35% of the total examined having or seeking the approval of the U.S. Initiative on Joint Implementation (USIJI). Sweden has been another key investor in AIJ projects, with 37 projects completed or underway, representing 32% of the total. The Netherlands has pursued at least 17 AIJ projects, with several others in the pipeline. The Netherlands maintains the primary geographical concentration of its investments on Eastern Europe and the Newly Independent States. Notably, the Netherlands has been the largest investor in energy efficiency projects concerning commercial-industrial applications.

2.2.4. Russian Experience in AIJ

The overview of Russian AIJ experience is complicated by mismatching of data on officially reported and existing AIJ projects. Thus there are 9 projects that are officially registered and posted on the UNFCCC website. This data however can be not complete due to absence of strict UNFCCC' requirement of reporting these data as well as overall diversity of initiatives that triggered AIJ projects in Russia. Some of implemented AIJ projects did not get the final approval by the designated Russian focal point, i.e. Roshydromet, and thus were not registered on the UNFCCC web site. Therefore, other sources points out that there are 11 AIJ projects (Hodes, 2000) thus ranking Russia second among countries with the largest concentration of projects completed or underway after Latvia (17 projects).

According to the most comprehensive sources of information on Russian AIJ/JI, the work done by Climate Strategies UK teaming international and Russian experts, there are 29 developed projects 9 from which have been either delayed or cancelled, 1 is at the stage of project design and for the 2 Russian-Dutch AIJ/JI initiatives there is no information. This leaves Russia with experience in 18 completed AIJ/JI projects (Tangen et al., 2002).

The biggest share of projects are in the energy sector ranging from conversion to the new fuel base (8); energy saving projects (9) and one aimed at reducing of gas losses during transportation. It is worth of noting that two of overall world five fugitive gas capture projects, with the United States and the Netherlands are implemented in Russia. There are also one Russian-EU and one Russian-USA reforestation projects. From 18 completed



Russian-European AIJ/JI projects 11 partnered Russia and Sweden, 6 were developed under the Dutch government programme on international co-operation with Central and Eastern region countries (PSO programme), and 1 Russia-Germany project aimed at reducing of CH4 losses during transportation was triggered between Ruhrgas and Gazprom. This indicates the strong European dimension of Russian AIJ experience.

On one hand both the size of Russia's economy and its economic performance in the mid-1990s likely have attributed to Russia's relative popularity for JI projects. Most Russian AIJ projects were launched between 1994 and 1997, a period when Russia's stock market was booming and Russia was one of the most popular emerging markets in the world. On the other hand, there can be a skepticism drawn towards evaluating the phase as successful because quite a big share (50%) of the officially approved and registered as AIJ projects failed on implementation.

The authors see both: inactive and unclear Russian climate change policy institutional basis and the poor investment policy to be responsible for this failure.

The first is notably referred both by Russian and foreign experts (Kokorin, 2000) to the weaknesses of the leading organization for Russian international climate change policy (Rosgidromet). The last lies in the evidence that AIJ/JI projects to be financed via promising direct foreign investment, in practice appeared to tap traditional financing sources used in the region. These include

development banks, foreign assistance, and in some cases, private finance. Most of Russian AIJ project financing has come from public bodies in both donor and host countries (Dutch Government, U.S. University, the U.S. Environmental Protection Agency and others). Only one project, the gas pipeline project with Ruhrgas and Gasprom, is commercial in the sense that it has been financed by a donor country corporation.

This is not surprising given that emission reductions from AIJ/JI in these countries have not provided a single investor – public or private – with any return on investment to date. A large number of implemented projects are investments that would pay for themselves even without reductions obtained. This fact may be related to the lack of direct financial value of carbon reductions at the point of time of AIJ implementation when anybody can say what the actual value of such reduction on the market possibly can be. This is also consistent with the estimates of low financial value of the carbon reductions varying in time and depending on expectations of host countries and development of international regulations under the Kyoto Protocol. Thus, the optimistic estimates of 70–100 euros per ton at the end 1990s fall drastically after the withdrawal of the USA from the Protocol to an extremely low proposed price of 2–4 euros that World Bank Prototype Carbon Fund (PCF) and the Dutch Emissions Reductions Procurement Tender (EURPT) were ready to pay in the beginning of 2000s. Currently, when more certainty on the Kyoto regulations exist and most due to the adopted by the EU emissions trading scheme, the estimates came up. This can be depicted best by the recently conducted trades, notably by one Central European company that sold 90,000 tones of CO_2 allowances at an average price of 6 euros per ton (Point Carbon, 2003). The indicated fine of 40 euros per ton in the period of 2005–2007 and 100 euros per ton in beyond 2007 under the EU directive on national Emissions Trading Scheme gives an indirect indicator for the possible price of 1 ton of GHGs reductions. However, still the market price for 1 ERUs can not be estimated at that level of certainty, which can satisfy the investors to accept the risk of starting JI projects.

Regarding the implementation of the Kyoto-based JI project the return of investments and the impact that the value of emissions reduction credits will have on it is crucial. Indeed very few investors want to pay for projects with no returns in the foreseeable future. Another important lesson learned from AIJ phase is that competitive on the GHGs market JI would be possible only if it is commercially and investment attractive.

2.2.5. Joint Implementation vs. Other Kyoto Protocol Mechanisms

The place of Joint Implementation in comparison with other flexibility mechanisms of the Kyoto Protocol besides the regulations adopted in the framework of the climate change policy negotiations can be assessed from different angels.

One can see the clear indication of the future competition between JI and CDM projects as both are project-based mechanisms allowing Annex I countries to account the resulted emissions reduction from their project investments against their Kyoto targets. To this end the investor would most probably prefer to invest in the project that generates emissions reductions with lower marginal abatement costs and the one that can be practically implemented, i.e. having low JI/CDM related investment risks, such as host-project national policy and investment climate as well as institutional arrangements set up for JI/CDM projects implementation. Consequently the competition between two mechanisms will strongly depend on the demand side, i.e. the need of Annex I countries in extra GHG reductions to comply with their target. The overview of the possible demand side is conducted in consequent chapters. Indeed the threat of loosing market for JI GHGs reductions for CDM is oftently cited in Russian literature is the major indicator to the necessity of early start and promotion of JI in Russia (Listvianov, 2003).

To define the cross-cutting issues shaping the place of Joint Implementation versus International Emissions Trading (as set up by the Kyoto Protocol) in the emerging carbon market is somewhat more difficult. One (Janssenn, 2000) can see JI as the *international production* of emission permits involving international investments whereas defining the IET as *international trade* in emission permits by this earmarking the cross-line between two different economic activities such as *production* and *trade*. Thus from an economic perspective, emission reductions may be interpreted as intermediate inputs required by regulated industries and companies for producing final goods. Regulated companies could produce this intermediate input in-house or buy it from another producer. Both activities, in-house production and purchase from another producer, could be performed domestically or internationally. Consequently, the company faces the situation where it has to decide to buy or to produce the needed reductions which will depend on the marginal abatement costs for GHG reductions on the side of production and transaction costs on the side of purchase. The purchase of extra GHGs reductions from entity to entity, as it is possible under JI regulations, will result in the intra-firm transfer of reductions. Hence, transactions of emission reductions between the JI project host and the JI project sponsor would figure as intra-firm trade.

In the present context this implies, e.g., that the higher the specificity of GHG abatements are, the higher is the probability that related international transactions are performed through international production, i.e. JI, as opposed to international inter-firm trade, i.e. IET (Janssenn, 2000). Following this line of argumentation one can question would international transactions of GHG emission reductions resulting from *different abatement project types* be carried out internally on the basis of international production, i.e. JI, or through external markets, i.e. IET.

Another important issue is the effectiveness of JI as a mechanism for attracting foreign financing for emission reductions. In reality host countries could invest in e.g. energy efficiency on their own, without meeting all the necessary requirements set up under Kyoto such as searching for foreign partners, monitoring the project and reporting to the international community on the results.

3. RUSSIA – EU JOINT IMPLEMENTATION

Independent of the sector of economy as an international investment, a JI project combines particularities of two types of projects – projects aimed at curbing emissions and those that are investment projects. The basic rationale inherent in the concept of JI under the Protocol is the possibility of generating emissions reductions that would be primarily cheaper than those achieved domestically. Secondly, they should be accountable against a country emissions reduction target under the Kyoto Protocol.

The following issues will shape the practice of the Russian-EU Joint Implementation:

- JI enabling environment such as conformity of the host and investing country with the requirements under the Kyoto Protocol,
- Supply versus demand for GHG reductions,
- Policy choice between mechanisms of host and investing countries.

3.1. JI Enabling Environment

3.1.1. European Union

The European Union ratified the Kyoto Protocol on 31 of May 2002 (UNFCCC, 2003) thus fully committing itself towards the Kyoto Protocol requirements.

The European Union always played an important and promotional role in negotiations on the Kyoto Protocol. The EU has a strong ''green'' position on climate change. EU countries as a bubble under Burden Sharing Agreement[1] (BSA, see Box 2) have ambitious targets for the reduction of greenhouse gases of 8% within 2008–2012 compared to their 1990 levels. This compares to an overall reduction of 14% (million tons CO equivalents) by 2008 compared to a Business As Usual (BAU) emissions forecast. The overall target has been distributed internally within the EU, and Member States have been allocated specific emissions reduction targets according to the 'burden-sharing' agreement of the Kyoto Protocol.

Box 2

Burden Sharing Agreement

Member State	Specific emission reduction in EU bubble (% of 1990 GHG emissions)
Austria	- 13 %
Belgium	- 7 %
Denmark	- 21 %
Finland	0 %
France	0 %
Germany	- 21 %
Greece	+ 25 %
Ireland	+ 13 %
Italy	- 6 %
Luxembourg	- 28 %
Netherlands	- 6 %
Portugal	+ 27 %
Spain	+ 15 %
Sweden	+4 %
UK	- 12 %

[1]According to the Kyoto Protocol countries are allowed to fulfil their commitment jointly. They can enter into agreement among themselves on how to achieve the joint commitment. The process was called *Regional Bubbles*. Till present, this provision has been used successfully only by the European Union, which adopted the 8% emission reduction target. EU member countries entered a burden sharing agreement (BSA).

Considering EU Member States in particular, it can be said that most of them have been at the forefront of efforts to mitigate global climate change. Some countries have been leaders in proposing targets for reducing GHG emissions that are higher than those under the bubble (Germany – 25% in the year 2005 and the UK – 20%). Among the EU countries that have strong domestic climate change action programs are Germany, the Netherlands, UK and Austria. They have introduced a wide range of domestic measures on the reduction of GHG emissions.

However, studies indicate (Gummer & Moreland, 2000) that major factors in the reduction of GHG emissions achieved so far have been the switch from coal-powered to natural gas-fired electricity production (in UK) and rehabilitation policies in the former East Germany. Other measures, noticeably energy efficiency incentives and high gasoline prices played a part. The reduction is unlikely to continue at the same pace and meeting the Kyoto target will be difficult.

The EU promotes the compulsory ''50% reduction at home'' policy thus leaving the option for external actions, e.g. JI or CDM for generation of cheap reduction credits and/or International Emissions Trading to buy reductions. JI takes a serious attention in comparison with other Kyoto Mechanisms due the desire of the EU to promote the environmental integrity of the Kyoto Protocol. The CDM projects with EU countries are rare in comparison with other Annex I investing countries and funds, such e.g. Japan or PCF because of the doubts expressed on the sustainability of such projects. Even the Netherlands the most active EU country in assessing and experiencing of all options available decided not to conduct third CER-PT tender on purchase of CERs. After the withdrawal of the USA the IET is also assessed with caution due to the prominent issue of hot air, i.e. reductions of GHGs mostly in Russia and Ukraine that are due to the economy collapse in 1990s and not to real abatement activities. This leaves JI a promise, and indeed EU countries, as we showed before, are active in acquiring experience in JI projects.

JI is also attractive because it is a perfect instrument for stimulating the greening of the industry. In most industrialized countries JI incentives come on top of already existing public support for green industry initiatives, including schemes aimed at enhancing the export of environmental technology. According to the World Bank Group, the volume of funds aimed at governmental support for the development of environmental technology programs is rather large. In Norway around 15–25 million euros have been spent annually on such programs since 1990. The largest portion of these

funds was targeted at environmental investments abroad. In Denmark the Action Plan on Cleaner technologies (for the period 1993–1997) received funds amounting to USD 60 million.

The same consideration is applicable to business-specific activities of entities that have vast potential for investing in climate-friendly projects abroad. These are mostly companies dealing with renewable energy technology and energy-efficient appliances. Petroleum companies engaged in activities upstream and downstream in other countries are sensitive to domestic regulations, but have a good potential of achieving these goals abroad, also fall in the same category. The potential of the emerging market of the EU green technologies is enormous. There is a clear desire to expand the market and there is a growing trend to transfer these technologies abroad. Therefore, it can be assumed that JI projects that will require the transfer of green technology will be attractive for the European Community.

3.1.2. Russia

Russia signed but still did not ratify the Kyoto Protocol, thus not meeting the main requirement to start using any of the Kyoto Mechanisms, including JI. Ratification of the Protocol by Russia is continuously the hot topic for last two years. It gets its prominence firstly because Russia' voice is vital in putting the Protocol into force due to its share of world emissions. Secondly twice Russian high officials declared Russia' readiness to start the process of ratification, i.e. Prime-minister Kasyanov' speech at the Johannesburg World Summit in September 2002 and the President Putin' speech at the EU-Russia Summit in May 2003.

The optimist can expect that the ratification package will be put to the Russian Parliament, Duma, already this September and that ratification may occur somewhere in-between the end of 2003–beginning 2004. Pessimist however can note that the new elections into Duma started on 3 of September 2003 and no one can really assess the outcomes. Pragmatists would point that everything that is related to ratification of the Protocol is dependant only on the highest authorities will, and thus can be ''yes-or-no'' depending only on what the leading grouping inside the Government will decide upon.

Why should Russia at all ratify the Kyoto Protocol? This is not a merely rhetoric question, but an issue that is heavily disputed inside Russia.

Under the Kyoto Protocol the Russian Federation committed itself to the stabilization of GHGs on the level of the year 1990. According to the second National Communication the target level corresponds to 3039 Mt CO_2

Table 3. Official Scenarios of Total GHG Emissions in Russia, CO_2 Equivalent (1990–2010).

Total equivalent GHG emission, Mt CO_2e/yr	1990 (fact)	1994 (fact)	2000	2005	2010
Basic scenario[a]	3 039	2 152	2 330 (77%)	2 710 (89%)	3 150 (104%)
Probable scenario[a]			2 280 (75%)	2 570 (85%)	2 910 (96%)
Optimistic scenario[a]			2 260 (74%)	2 520 (83%)	2 790 (92%)

[a]Note: rounded values and percent of the level of the year 1990.
Source: ICCC, 1998.

equivalent (ICCC, 1998; FCCC SBI, 2000). Factual level of emissions for the target year is not precise. For example cumulative emissions of basic greenhouse gases the level of Russian emissions in 1990 corresponds to even lower level of 2 648, 062 Mt of CO_2-equivalent. Factually in the 1996 Russia emitted 57.6% less then this level (i.e. 1122.441 Mt CO_2 equivalent).

The range of official projected emissions (Table 3) indicates that Russia will hardly exceed the Kyoto target before the first budget period, indicating the possible surplus of GHG emissions in the middle of the first commitment period up to 8%, i.e. 249 Mt CO_2e. This possible surplus of emissions, oftently referred to as hot air is being attributed to economic decline rather then to result of abatement measures.[2]

Official reported projections differ from the latest estimates. Between 1990 and 2000, according to the Russian Ministry of Fuel and Energy estimates, carbon dioxide emissions declined by about 33% in the Russian energy sector. There has been a slight rise in emissions over the last two years, however, mainly due to greater domestic use of coal (7.6%), oil and oil products (8.3%). Under the national Energy Strategy, approved by the Government of the Russian Federation, this tendency will remain in the next ten years. Accordingly, even with high development scenario without full scale introduction of energy efficiency measures the volume of carbon dioxide emissions by the Russian energy sector in 2010 will constitute only 80% of the 1990 base year level, approaching the level of 95% only by 2020 (Fig. 2).

This indicates that most probably Russia will have much bigger volume of hot air, and thus potential AAUs to sell under IET then it was expected. Moreover with full-scale implementation of energy efficiency measures this volume could be expected to grow. The estimated level of emissions puts

[2]For more information on the discussion see Michaelowa and Koch (1999).

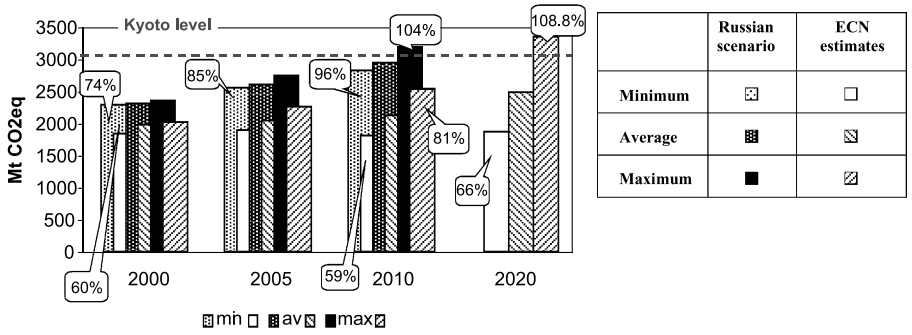


Fig. 2. Scenarios of GHGs emissions 2000–2020.

Russia in a position of one of the biggest suppliers of emissions reductions in the emerging carbon market. The share of the emissions that belongs to the energy sector gives it a strategic position among the other sectors of the Russian economy. The reduction of emissions since 1990 was accompanied by an even greater decrease of economic activity, which means that the Russian energy-sector has become more energy-intensive during the last decade.

Thus the strongest pro-ratification argument is based on the possible economic benefits that Kyoto Protocol can bring to Russia via IET as extra gain and via JI as the potential source of investments into energy sector. Moreover, the official statement of the State Duma of the Russian Federation of June 2002 states "... the confidence that the Russian Federation can fulfill the Kyoto protocol's GHG reduction commitments", so there are no direct threat of joining the Protocol. Other argumentation stresses the overall position of Russia on international political arena that can be hampered by the fact of declaring promises but not fulfilling them. Pro-ratification activists also point out that there is threat that in future Russia will have to join the countries in their climate change mitigation efforts which then can become really difficult in economic and technical terms because Russia will have to catch up with already experienced counterparties.

The counter-ratification arguments are based mostly on doubts of environmental and economic value of the Kyoto Protocol after the withdrawal of the USA and non-inclusion of other biggest polluters such as India and China into Annex I countries, i.e. countries that have quantified GHG reduction targets. This vision is supported by the Deputy Minister of

Economic development and trade of the Russian Federation, Mr. Tzikanov, and by the head of the department of the Ministry of Energy of the Russian Federation, Mr. Mastepanov (Listvianov, 2003).

The vision of absence of economic gains from IET due to low demand for credits and prediction of low flow of JI projects due to JI related barriers are also indicated as crucial of not jumping into obligations under the Kyoto first commitment period. The last argument is also expressed by the key officials (Listvianov, 2003) supported by the notion that after 2012 Russia most probably will not have such a fortunate target (i.e. stabilization of GHGs emissions on the level of 1990), and most probably will force itself in some rigid compliance regime. The letter will hamper the economic growth that is estimated as the first priority of Russia and is expressed in really impressive forecasted tempo of development (MEDT, 2003).

In practice apart from the ratification of the Kyoto protocol the following issues are necessary to make JI in Russia operational:

1. The clear institutional arrangements for approval and support of JI project should exist with the clear designation of the organisation responsible for such functions. Such arrangements should be designed in order to minimize transaction costs as much as possible.
2. The set up of priorities and criteria for JI should be on place. This also will help to correlate the JI practices with overall economic development programs.
3. The promotion of JI projects development according to the criteria should be on place. For this the dialog with regions, private entities and public should be initiated. Other incentives for JI promotion such as potential tax brakes can be beneficial.
4. Information on the domestic policies in JI should be made clear and transparent for the potential investors.
5. Identification of the possibilities on place (such as setting up the entity baseline) should be promoted.

This is a huge work that is yet to be done by Russia.

3.2. Demand Versus Supply of GHG Reductions

3.2.1. European Union

The EU political commitment to take action on GHG emissions appears to be generally strong and supported by public opinion. Studies (Gummer &

Moreland, 2000), however, indicate that despite strong domestic climate change action plans in the member states the likelihood that the EU, as a whole, will achieve its obligations by 2008/12 is low. Thus, the demand for additional emissions reductions achieved through flexible mechanisms exists. The demand for credits originating from a JI project is based on three components:

- A country-specific emissions reduction target;
- The difference in costs of achieving reductions at home and those generated abroad;
- The national policy put on place.

In the case of the EU, countries differ on their specific targets and marginal abatement costs for achieving additional units of emissions reduction at home. As the PRIMES[3] model shows (Capros & Mantzos, 2000), if each EU country meets the targets (the situation in which no domestic EU emissions trading takes place), the marginal abatement costs ranges from 13.5 Eur/tCO_2 (Germany) to 150.7 (the Netherlands), reaching an average of EUR 54.3 for the EU. In total, EU will have to spend something like EUR 9 billion in order to achieve their target in the first commitment period (2008–2010).

However, latest estimates PRIMES model and indicated limitations in achieving reductions at home show that meeting the requirements of this policy can be really a difficult and costly task. In order to decrease the costs of achieving emissions reductions the EU will initiate the EU-wide domestic emissions trading that has been set up to emerge in 2005. In this case, indeed, the price of compliance drops by 24% and accounts to roughly 6.9 billion euros.

The marginal abatement costs outside the trading regime range (Table 4) from 31.1 euros per tCO_2 (Austria) to 107.8 euros (the Netherlands). Since the price of ERUs is less than the unit of reduction achieved at home, the country is potentially interested in starting a project. For example, the Netherlands will be interested in projects up to its ''margin'' 107.8 euros.

Several initial conclusions can be drawn from this scheme. Considering the average price of one EUR indicated from the AIJ phase to be around 50 euros the wide-scale application of JI with EU countries (apart from Netherlands

[3]PRIMES is a price-driven partial equilibrium model for energy-environment analysis within the context of market-driven behavior. The short description is available at http://www.worldbanlcorg/html/fpd/ernlpowerIEA/methods/tudprime.stm

Table 4. Countries – Potential Partners for JI Depending on the Range of Costs for Generating 1 ERU.

20–30 Euro/tCO_2	30–45 Euro/tCO_2	45–60 Euro/tCO_2	60–100 Euro/tCO_2
Austria (31.1)	Belgium (67.6 Euro/tCO_2)	Belgium (67.6)	Netherlands (107.8)
France (26.7)	Netherlands (107.8)	Netherlands (107.8)	
Germany (31.6)	Ireland (41)		
Belgium (67.6)	Finland (40.4)		
Netherlands (107.8)	Greece (34.2)		
Ireland (41)	Portugal (34.3)		
Finland (40.4)	Spain (32.5)		
Greece (34.2)	Sweden (36.2)		
Portugal (34.3)	UK (32.7)		
Spain (32.5)	Italy (33.3)		
Sweden (36.2)			
UK (32.7)			
Italy (33.3)			

Note: In brackets the marginal abatement costs for generating emission reduction at home in Euro/tCO_2 is shown for every country.

and Belgium) is questionable. This is especially valid if it is noted that the price of 1 unit under the CDM can be potentially much lower. Therefore, only projects that generate ERUs at a price lower than EUR 30 have a probability have finding an investing EU country. The higher the price, the more value would be put by the home country on the factors that will determine the success of the investment project (these include the investment climate of the host country and risks associated with investments in a particular project activity). In brackets the marginal abatement costs for generating emissions reduction at home in Euro/tCO_2 is shown for every country.

3.2.2. Russia

The precise estimates of possible supply of Russian emissions reduction credits is uncertain due to the lack of data on-hand that are limited to outdated and not full second National Communication and assumptions on projects of emissions drawn by various experts. This especially is true regarding the AAUs supply under IET. The evaluation of how much Russia will be able to supply to the market under IET thus cannot be precise and varies significantly from one estimate to another depending on assumptions on the pace and character of economic development in Russia. Energy efficiency and saving can also give a significant input on the level of emissions. According to the

Ministry of Economic Development and Trade (MEDT) of the Russian Federation the potential supply of GHGs in the form of AAUs is estimated as 3 billion tons annually. The potential overall international demand is estimated by MEDT as of 300 million tons annually (Listvianov, 2003).

Regarding Joint Implementation it is possible to draw some assumption on the bases of official Russian energy studies and on the experience of the AIJ phase. The Russian Energy Strategy (for the period up 2020) assumes that as much as 20% of energy-saving potential, equivalent to 70 to 85 million tons (carbon equivalent) per year can be achieved at a cost of euros 15 per ton even with current domestic prices for fuel and energy resources. The highest-cost measures, at more than euros 60 per tone, constitute approximately 15% of the energy-saving potential. Realization of the remaining portion requires target investments that are 10–30% lower than respective capital inputs for expansion of the fuel and energy sector production base. This means that projects on energy saving and energy efficiency will be more attractive. The Russian Energy Ministry estimates that energy-saving measures used intensively will help reduce energy consumption by 360 to 430 million tons of coal equivalent per year. About one-third of the energy-saving potential is concentrated in the fuel and energy sector industries; the remaining two-thirds in other branches of the economy.

Basing on available information (Tangen et al., 2002) the following break down of costs of one ton CO_2 reduction for completed Russian AIJ projects can be drawn:

- For energy efficiency projects ranging from 3.5 euros (3.1 USD $) for modelling and optimization of grid operation of the gas transportation system to 46 euros (45.49 USD $) for infection hospital energy efficiency
- Fuel switch projects with the lowest 3.7 euros (3.68 USD $) for district heating project and the maximum of 34.5 euros (34.14 USD $) for wood processing fuel switch project.
- Russian-Dutch Fugitive gas capture project on sanitary landfilling with energy recovery estimates around 7 euros (6.82 USD $) per ton of CO_2.

If to take into account that there is a big room for similar projects in Russia one of the conclusions can be drawn that Russian energy JI projects in theory can fit well in the boundaries of 5–50 euros per ton.

3.3.3. Price Setting

The price setting is very uncertain. After the withdrawal of the USA, the emerging carbon market looses the potential biggest buyer. According to some

estimates the supply side of emission credits can outweighed the demand and therefore the potential carbon price will drop significantly in case of full hot air trading. The expected price is an important criteria in decision making on JI and ET as well as for project developers and investors. However, future price setting n the carbon market is very difficult to predict.

There are also some assumptions that the price will not be entirely ''equilibrium'' driven. It is anticipated that the international carbon price will be a political construct reflecting willingness to pay, market power, and management approaches (i.e. Russian initiative on Green Investment Scheme). Therefore the plausible level on this basis could be in the range \$20–50 t/C (or 5–15 euros/tCO_2), and possibly differentiated depending on the mechanisms used (Grubb, 2001).

In line with the US withdrawal and unrestricted trading under the IET rules, the issue of hot air (also referring to Ukraine) plays an important role in a) establishment of possible carbon price and b) influencing on the environmental effectiveness from IET employment. As studies indicate, it is in Russia's (and Ukraine) interest to exercise market power by curtailing and banking supply ranging from 50 to 80%. (Fig. 3).

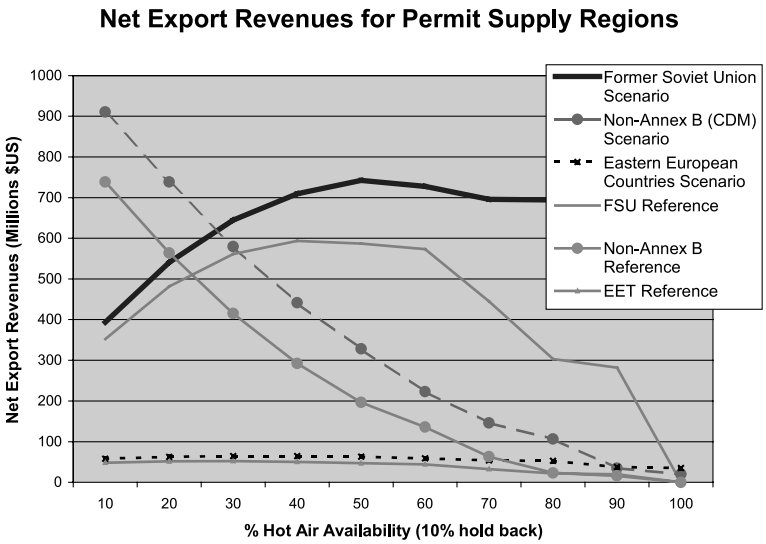


Fig. 3. Net Export Revenues for permit supply regions. Source: Kypreos et al., 2002.

Table 5. Effect of Curtailing Supply of Hot Air.

	Environmental effectiveness				Economic efficiency	
	Annex I abatement MtC	Emissions compared to 1990		Domestic reduction	Permit price ($/tC)	Annex I costs (bn $)
		Excl. USA	Incl. USA			
Bonn Agreement (BA)	130	− 0.1%	+10.6%	14%	9	2
BA & curtailing and banking 50% hot air	300	− 6.2%	+6.5%	31%	20	5.3

Source: Grubb (2001).

This policy would bring quite important results: improvement of environmental effectiveness of the policy; increase financial revenues for Economies in transition (EIT) and non-Annex I countries, and increases Annex I abatement costs (Table 5). Other models, such as POLES, also show similar conclusions.

3.3. Policy Choice of Mechanisms of Host and Investing Countries

The agreed in Marrakech rules identify that once an Annex I country is eligible under the Kyoto Protocol requirements it can build its strategy on utilization of the Kyoto Mechanisms, putting different weight on either of the mechanisms depending on national priorities and anticipated benefits from the Mechanisms.

For the Annex I countries that have to reduce their GHG emission levels, i.e. for the EU, the major factors determining this strategy will be the price factor – where is cheaper to obtain reductions (at home, by JI, IET or CDM) and the overall development trend aimed on implementation of sustainable, environmentally friendly policies.

For Russia as one of the major hosts for JI it will be the maximization of profits gained via the Kyoto Mechanisms, international policy making, ability to meet the UNFCCC requirements and ability to create institutional structures and enabling instruments for the Kyoto Mechanisms.

3.3.1. European Union: Emissions Trading Scheme

The European Union is a notable promoter of Climate Change policies. The position regarding the Kyoto Mechanisms is aimed on securing environmental integrity of the Protocol. A big number of studies and different activities were conducted on the EU level with employment of different Expert Groups, as well as on the separate level of Member States. The literature on EU climate change policies is vast,[4] and it can be stated that the EU policy in respect of co-operation on the implementation of the Kyoto Mechanisms has a guiding character. It is recognized that Member States shall take existing national and EC requirements into consideration when they adopt national measures for the implementation of JI.

[4]For better understanding and more background on the issue the reader is advised to check the European Commission web-site. URL: http://www.europa.eu.int/comm/environment/climate

In analyzing the policy choice of the Mechanisms for European Community it is important to bare in mind that there is a common policy of the EU towards Kyoto that is expressed in their Burden Sharing Agreement (BSA), the environmental integrity: 50% at home and 50% abroad rule agreement, and emerging EU wide emissions trading scheme (ETS). However there is also a policy of EU Member-States that, although has to be in line with common EU policy, has a room for variations, especially in regard of inclusion of external actions such as Joint Implementation in their national policies. Some Member States, e.g. Germany are stricter in their domestic policies then others. Others, e.g. the Netherlands will employ all possible internal and external actions with significant weight of JI and CDM credits to comply with its target. The most important to date policy, however, is the emerging EU ETS.

The Common Position on establishment of the EU domestic emissions trading scheme was approved on 18th of March 2003. The system to start from 2005 onward limits carbon dioxide emissions from a broad range of industries, such as power generation, and places them within a regulatory framework. The large carbon dioxide emitters will be allocated allowances on an annual basis through national allocation plans and required to matchkeep their emissions with their holdings of in the limits set by the allowances. If they reduce emissions to a level below their limits, they can sell the excess allowances to other companies or keep them for future use. Vice versa, companies that exceed their limits can invest in abatement technology or buy allowances on the market to match their emissions, whichever is the cheaper. In this way, it is expected that the EU scheme will allow emissions reductions to take place at minimum cost to the economy.

Later in July the special provision on linkage of Kyoto Protocol project-based mechanisms (i.e. JI and CDM) was reached. In the latter documents the inclusion of Russian JI starting from 2008 is particularly highlighted. The projects need to result in real, measurable and long-term climate change benefits, which will be verified according to the Kyoto Protocol. Based on these verifications, Member States will be free to convert such credits into allowances under the EU emissions trading scheme so that they can be traded within the scheme. The proposal is build to enable the Commission to ensure that the EU's emission targets will not exclusively be met by cutting emissions through projects. It envisages the triggering of a review once JI and CDM project credits equivalent to 6% of the total quantity of allowances issued for the 2008–2012 trading period enter the emissions trading scheme. If triggered,

this review will consider placing a limit on the credits that can be converted during the remainder of the trading period. The introduction of such a quantitative limit would be done through the committee carrying out tasks in relation to the EU's emissions trading scheme, where the Member States are represented.

The proposal excludes nuclear projects in line with the Kyoto Protocol's rules and ''carbon sinks.'' Carbon sinks – forests to soak up CO_2 – have been a contentious issue at international level because they do not bring technology transfer, they are inherently temporary and reversible, and uncertainty remains about the effects of emission removal by carbon sinks. International negotiations on what types of forestry projects might be acceptable to governments have not yet been completed.

The emerging EU ETS is very interesting as it intends to bridge, alike the Kyoto Protocol, two different frameworks: community cap and trade of direct emissions system (ex-ante allocation) and the Kyoto protocol projects, i.e. baseline and credit system (ex-post verification). The interest lies in differences inherited by those two systems, such as different regulatory context and institutions involved, different timing and different level of certainty ranging from ratification of Kyoto Protocol to implementation of JI/CDM. This exercise, although limited to 2005–2007 will give and indispensable experience for the EU in Kyoto Protocol mechanisms and also for JI/CDM host countries in practicing the full range of situations that are very likely to occur in the future when the carbon market will start working in 2008.

3.3.2. Russia: Green Investment Scheme

In 2001 Russia introduced the concept of Green Investment Scheme (GIS) to the international agenda. The outline of the scheme is presented in the work of Tangen et al. (2002).

The emerging GIS is a middle way between IET and JI, as it combines the sale of allowances with investment in actual energy efficiency projects. The design of the scheme is not fully developed yet. Therefore, there is no clarity yet, which actors (government agencies, private sector companies or both) would be engaged under this scheme. One of the key provisions inherented in the concept is possible forward sales of AAUs before Russia is fully eligible for IET and investment of achieved revenues to energy saving and other projects. In light of possible problems of Russia in meeting eligibility criteria for participation in IET and the GIS to present is one of the most comprehensive policy option proposed by Russian team.

Box 3

Green Investment Scheme –the perspectives for Russia

- Increase of energy efficiency
- Improvement of economic situation
- Improvement of environment
- Improvement of energy supply and safety
- Strengthening of international links and cooperation
- GIS can potentially insure the 15% of the necessary investments into energy efficiency that are estimated at the necessary level of 3-4 ml US $/ per year in the period 2008-2012, thus presenting not the potential hot air trading but real investments.
- Qualitative limit (i.e. strict) criteria would ensure maximum benefits and bigger volume of sales.

The broad criteria under that the scheme has to meet are as follows:

– Bring real investments in Russian energy efficiency,
– Provides emission cuts with legitimacy in context of the climate regime,
– Has a level of transaction costs and risks associated with it that makes it competitive with other alternatives for quota transfer.

It is expected that the scheme will operate under centralized control over the trades in order to avoid over selling and other risks that will happen in uncoordinated market. Due to the concept the scheme should present clear investment instrument into projects. The treatment of the projects is proposed under the two approaches: program and project approach that are expected to work in tandem. The two approaches take their rational on the orientation of the scheme on two different partners: the EU and Japan. Thus the program approach will manage small projects on the line with less strict verification procedures with no link between the buyer of Russian AAUs and the actual projects in Russia, satisfying the Japanese criteria for projects. The project approach understands that a receiver of AAUs is directly involved in project development. Projects under such approach can

be expected to be big. The approach also targets the possible EU interest in GIS.

So far the only one conclusion that can drawn about the scheme is that being the most comprehensive Kyoto mechanisms policy on place the scheme even in its design has a very complex nature and is yet not officially approved as the national programme or strategy.

3.4. EU-Russia Partnership: Something Else in Common?

The EU and Russia have common interests in both climate and energy issues; often these interests are related to each other.

Both Russia and the EU are big players in the climate field and are able to strongly influence the rules of the forthcoming climate regime. Russia and the European Union are natural partners in the energy sector. 45% of Russian energy exports are directed to the EU. 53% of Russian oil exports (crude and products) or 181 million tons of oil equivalent (toe) went to the EU in 1999. Some 63% (130 billion cubic meters (Bcm)) of Russia's natural gas exports of 205 Bcm were delivered to European countries in the year 2000, with contractual requirements to increase deliveries to around 200 Bcm by the year 2008. Approximately 56% (73 Bern) of the natural gas exported to Europe in 2000 was delivered to the EU. The energy sector in Russia represents a major opportunity both for foreign investment and for export revenues. The need for new capital in the sector has been estimated at between $460 and $600 billion up to the year 2020 (Mastepanov, 2001).

The Russian-European Energy Partnership initiative by presidents Prodi and Putin was introduced in October 2000 in order to raise all the issues of common interest related to the energy sector. The main idea was to develop the existing energy dialogue and secure the long-term energy supply and demand. A high-level joint working group on energy was established in order to outline a program to promote EU imports of Russian gas, oil and electricity. The Kyoto Protocol has an important place in the Energy Dialog (Korppoo et al., 2001).

There seems to be the match of interests. Russia needs investments in energy-saving and energy efficiency. The EU should secure an uninterrupted and safe supply from Russia with a firm commitment for the implementation of the Kyoto Protocol. JI in the energy sector can help achieve both goals. JI between Russia and EU is economically feasible. In EU countries there is a demand for credits generated by JI projects, strong policy commitment and domestic incentives for private entities in place. In Russia there is a

willingness to participate, a vast reduction potential and all the preconditions necessary for improving the investment climate.

Other aspect is the EU-Russian environmental cooperation that is declared to be strengthened by the Commissioner M. Wallstrom during Troika visit[5] to Russia in March 2003. She particularly stressed that for the European Union, ratification of the Kyoto Protocol is no longer solely an issue of environmental policy. It is part of our broader bilateral agenda with Russia (Wallstrome, 2003). The agenda is strongly linked to the strategy for a new neighborhood policy of an enlarged European Union, including with Russia. It builds on the existing EU Partnership and Cooperation Agreement and aims at further strengthening relations in all areas, including the environment.

4. CONCLUDING REMARKS

It is anticipated that Joint Implementation brings several benefits for all parties involved. First of all it allows meeting environmental goal in mutually beneficial way. For an *investing country* it means contribution to meeting the emissions reduction target at lower cost than through national measures and creation of the new business opportunities for renewables, efficiency technologies, management tools, products, and consultants. For the *host country* JI means attraction of foreign investments, contribution to meet the emissions reduction target at almost zero cost, creation of incentives to new business opportunities for renewables, efficiency technologies, management tools, products, consultants and contribution to enhancement of energy security and independence by lessening demand for energy use.

The biggest barrier seen for JI between the EU and Russia is the fact that there is no clarity on ratification of the Kyoto Protocol by Russia and no clear designation of which organization is responsible for implementing the Kyoto Mechanisms. In particular, a clear traceable procedure with respect to JI projects (that would include certification, verification and approval) with a clear division of the responsibilities between agencies is still lacking.

One can speak of matching interests between Russia and EU. Russia needs investments in energy-saving and energy efficiency. The EU should secure an

[5]Troika refers to the EU Delegation represented by the Greek Environment Minister Vassou Papandreou as President-in-office of the EU Environment Council, European Environment Commissioner Margot Wallström and Environment Minister Altero Matteoli of Italy.

uninterrupted and safe energy carriers supply from Russia with a firm commitment for the implementation of the Kyoto Protocol. JI in the energy sector can help achieve both goals. JI between Russia and EU is economically feasible. In EU countries there is a demand for credits generated by JI projects, strong policy commitment and domestic incentives for private entities in place. In Russia there is a willingness to participate, a vast reduction potential and all the preconditions necessary for improving the investment climate. The latest initiative on the Green investment scheme shows promising signs that Russia is capable to come up with own national strategy that would tackle implementation of the Kyoto Protocol mechanisms.

The emerging EU emissions trading scheme intends to bridge, alike the Kyoto Protocol, two different frameworks: community cap and trade of direct emissions system (ex-ante allocation) and the Kyoto protocol projects, i.e. baseline and credit system (ex-post verification). The interest lies in differences inherited by those two systems, such as different regulatory context and institutions involved, different timing and different level of certainty ranging from ratification of Kyoto Protocol to implementation of JI/CDM. This exercise, although limited to 2005–2007 will give an indispensable experience for the EU in Kyoto Protocol mechanisms and also for JI/CDM host countries in practicing the full range of situations that are very likely to occur in the future when the carbon market will start working in 2008. For Russia the scheme has a special relevance as it allows introducing real JI projects into the scheme.

An important issue is the effectiveness of JI as a mechanism for attracting foreign financing for emission reductions. In reality host countries could invest in e.g. energy efficiency on their own, without meeting all the necessary requirements set up under Kyoto such as searching for foreign partners, monitoring the project and reporting to the international community on the results. This concern can be well smoothened by the latest activity of Russian energy and oil majors (RAO UES Rossii – biggest monopolist in electricity generation, UKOS – oil and gas major and Gasprom – gas monopolist) that plan to conduct corporate inventories and support the newly established Carbon Partnership Agreement that also includes the aluminum giants. The RAO UES Rossii' Carbon Fund that already has the portfolio of more then 300 GHG abatement projects in energy sector just needs the green light of Russian ratification to start its business activities.

Potential of Russia-EU JI projects is substantial as from the point of view of Russian technical and energy saving potential and mitigation costs as Russian

energy JI projects in theory can fit well in the boundaries of 5–50 euros per ton – the range which is acceptable by most of EU countries. The experienced learned by the EU and Russian organizations and structures in AIJ phase and overall enhanced co-operation between EU and Russia can be very supportive in furthering JI.

The issue of high uncertainty that hampers all the opportunities for EU-Russia JI is pending ratification of the Protocol by Russia. Being optimists we consider that this barrier will be overcome in the nearest future.

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